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# LONG CIRCULATING CONTRAST AGENT FOR HIGH RESOLUTION CARDIOVASCULAR CT IMAGING

ACC Poster Contributions
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Session Title: CT Coronary Angiography - Novel Approaches
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**Background:** Computed Tomography (CT) angiography for cardiovascular (CV) imaging requires rapid image acquisition after bolus injections of iodinated contrast due to their rapid clearance. A promising alternative is the encapsulation of contrast agents in liposomes for reduced toxicity and long-residence time.

**Methods:** Iodixanol-encapsulated liposomes (IEL) were composed of a lipid shell consisting of DPPC/Cholesterol/DSPE-PEG-2000 and a payload of iodixanol. In vivo pharmacokinetic parameters and tissue/ organ distribution of IEL were determined. CT imaging in mice was performed for up to 30 mins in a high resolution flat panel CT scanner (General Electric) after bolus injection of free or encapsulated iodixanol.

**Results:** The mean diameter of IEL was 150 nm. The encapsulation efficiency of iodixanol inside IEL was 19%. IEL were stable up to 3 weeks resulting in no significant leakage of encapsulated iodixanol. The half-life of IEL was 55.0±15.4 min, resulting in prolonged opacification of the intravascular structures as detected by high resolution CT imaging (figure). The superiority of imaging with IEL was demonstrated by the delineation of small vessels within organs, as well as the ability to obtain uniform opacification of both the arterial and venous structures in vivo. .

**Conclusions:** Long circulating IEL allows detailed CT imaging of the CV system and the potential to reduce the dose of iodixanol, minimize systemic toxicity and be functionalized with homing ligands for molecular imaging.